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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,376	11/12/2003	William Edward Burdick JR.	RD-28,532-7	1834
6147	7590	09/02/2004	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			LEE, BENNY T	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6~~5~~, 9-15, drawn to a method of fabricating an interconnect structure, classified in class 29, subclass 852.
- II. Claims 7, 8, 16, 17, drawn to an interconnection structure and probe, classified in class 333, subclass 247.

The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process such as bonding the layers together through a sintering process rather than through adhesive bonding and etching, as claimed.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ann Agosti on August 19, 2004 a provisional election was made without traverse to prosecute the invention of Group II, claims 7, 8, 16, 17. Affirmation of this election must be made by applicant in replying to

this Office action. Claims 1-6, 9-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The disclosure is objected to because of the following informalities: Page 4, paragraph (0012), note that the brief description of figures 1 and 2 should be rewritten as separate paragraphs for consistency of description; in the subheading between paragraphs (0017) and (0018), note that <sup>of the invention</sup> should follow "Description." Page 10, paragraph (0038), note that "42" should correctly be -- 142 --. In the detail description, it should be noted that reference labels which are uniquely depicted in a particular figure(s) should be explicitly reference in the corresponding specification description of such drawing figure(s).

Appropriate correction is required.

The drawings are objected to because of the following: In fig. 3, note that mask -- 28 -- needs to be depicted herein; In Fig. 5, note that reference label -- 18 -- needs to be added. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 16, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 16, note that it is unclear whether the characterization of the first portion of adhesive is correct as recited. That is to say, is it proper to say that the first portion of adhesive being adhesively attached to ~~the~~ the dielectric layer while not being adhesively attached to the electrical device? Note from the specification description of the final product, which defines the interconnection structure (i.e. Figs. 6, 12), shows that the first portion of adhesive (along with the portion of the dielectric layer affixed thereto) is totally remove (i.e.. does not exist) in the final product. Clarification is needed.

The following claim has been found objectionable for reasons set forth below:

In claim 16, line 7, should "the" (first occurrence) be deleted as being unnecessary?

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 8, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kornrumpf et al in view of Gamand(both of record in the parent application).

Kornrumpf et al discloses an interconnection structure comprising a dielectric layer (30) with a metallization pattern (32, 34) disposed thereon. As described at col. 10, ls 61-66, a single continuous metal layer has portions thereof photo lithographically defined such that when the continuous metal layer is etched away, the photo lithographically defined portions (e.g. metallization patterns 32, 34) prevent or stop etching of those portions and thus those portions remain. Moreover, note that the

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etched metallization patterns terminate at a perimeter of an opening or aperture (39).

As described at col. 10, ls 21-26, the substrate (30) is bonded at least to an active component (20) by an adhesive resin. Moreover, as described at col. 10, ls 27-39, this adhesive resin is described as being heated and reheated thereby inherent<sup>ly</sup> characterizing such an adhesive as being cured (i.e. through the process of heating/reheating). Moreover, note that via holes in dielectric layer (30) provide electrical connection between metallization patterns (32, 34) and corresponding contact pads (22, 24) on the active component. Note that Kornrumpf et al does not explicitly disclose that an active area of the active component resides in an area within the perimeter of the etch stop portions or aperture (39).

Gamand fig. 4c discloses an exemplary teaching of a semiconductive (i.e. active) element (1) having an active area or zone (AZ) for transistor (T) which is centrally located in the active element (1).

Accordingly, it would have been obvious in view of the references taken as a whole to have modified the active component (20) of Kornrumpf et al to have included a centrally located active zone or area such as taught by Gamand. Such a modification would have been considered a substitution of art recognized active components or elements, especially since the generic nature of the active component in Kornrumpf et al would have suggested that any equivalent type of active component (e.g. the centrally located active zone as taught by Gamand) would have been usable therewith. Note that as an obvious consequence of providing such a centrally located active area or zone, such a zone obviously would have been within the etch stop perimeter or

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*and conversely the region outside aperture (39)*  
aperture (39) is where adhesive bonding of the active component (20) to substrate (30) occurs. Regarding, claim 8, note that since no uniquely distinguishing characteristics of the "probe" can be found in the body of claim 8, no patentable weight has been given to the probe limitation recited in the preamble of claim 8. Regarding claim 17, in view of the indefinite nature of the "first portion" of the adhesive, the examiner takes the position that any teaching that omits adhesive within an etch stop perimeter (e.g. the aperture in Kornrumpf et al) from contacting an active zone in the combination and as such would have met such an indefinite recitation.

Any inquiry concerning this communication should be directed to Benny T. Lee at telephone number (571)-272-1764.

Lee/ds

08/26/04



**Benny T. Lee**  
Primary Examiner



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Washington, D.C. 20231

FILED DATE

10/7/4/376

☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), \_\_\_\_\_ day(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.      | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-17 are pending in the application.  
Of the above, claims 1-6; 9-15 are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 7, 8; 16, 17 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☒ Claims 1-17 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_, filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other